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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/550,598

07/24/2006

Hee-Seob Kim

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23413 7590 12/09/2010  
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EXAMINER

CALEY, MICHAEL H

ART UNIT

PAPER NUMBER

2871

NOTIFICATION DATE

DELIVERY MODE

12/09/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,598	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> MICHAEL H. CALEY	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 8-13 and 15-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-13 is/are allowed.
- 6) ☒ Claim(s) 15, 19, 20, 25-27, 29 and 30 is/are rejected.
- 7) ☒ Claim(s) 16-18, 21-24, 28 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/13/10</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 15, 19, 20, 25-27, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraishi (U.S. Patent No. 6,104,450) in view of Kim et al. (U.S. Patent No. 6,473,142 “Kim”).**

Regarding claim 15, Hiraishi discloses a liquid crystal display comprising:

a first substrate (Figures 16 and 17 element 101a);

a plurality of pixels disposed in a matrix on the first substrate, the pixel comprising a first pixel electrode (e.g. 112) electrically connected to a first transistor (105a) and a second pixel electrode electrically connected to a second transistor (105b), wherein the first pixel electrode and the second pixel electrode are separated from each other;

a second substrate facing the first substrate and having a common electrode (115);

and

a liquid crystal layer (116) interposed between the first substrate and the second substrate,

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wherein the liquid crystal layer on one of the first pixel electrode and the second pixel electrode is divided into at least 4 domains (e.g. a separate domain is created in each of areas b''; Column 20 lines 11-40),

wherein an electric field generated between the first pixel electrode and the common electrode is different from an electric field generated between the second pixel electrode and the common electrode (due to lack of symmetry between common electrode and first and second pixel electrodes (Figures 17a, 17b).

Hiraishi fails to explicitly disclose the domain as defined by an orientation direction of liquid crystal molecules when a voltage is applied to one of the pixel electrodes. Kim, however, teaches domains as defined by an orientation of the liquid crystal molecules (Column 2 lines 1-4; Column 6 lines 30-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the domains to be defined by an orientation direction of the liquid crystal molecules when a voltage is applied. One would have been motivated to form domains as proposed to achieve the effect of a wide viewing angle due to differences in liquid crystal alignment (Kim: Column 6 lines 41-45).

Regarding claims 19 and 20, Hiraishi discloses a coupling electrode as proposed (e.g. Figure 17a element 111).

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Regarding claim 25, Hiraishi discloses a surface area of the first pixel electrode as different from a surface area of the second pixel electrode (Figure 16).

Regarding claims 26 and 29, Hiraishi discloses the boundary of the first pixel electrode as different from a shape of a boundary of the second pixel electrode (Figure 16).

Regarding claims 27 and 30, Hiraishi discloses the boundary of the first pixel electrode and the boundary of the second pixel electrode as both polygonal (Figure 16).

#### ***Allowable Subject Matter***

Claims 8-13 are allowed.

Claims 16-18, 21-24, 28, and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL H. CALEY whose telephone number is (571)272-2286. The examiner can normally be reached on M-F 6:00 a.m - 2:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael H. Caley/  
Primary Examiner, Art Unit 2871